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2013

### Nebraska Summary: S927 Challenger MT545D

Nebraska Tractor Test Laboratory

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# SUMMARY OF OECD TEST 2788-NEBRASKA SUMMARY 927

## CHALLENGER MT545D AP6 DIESEL

### 24 SPEED

#### POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Diesel Consumption Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	D.E.F. Consumption Gal/hr (l/h)	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION						
Rated Engine Speed—(PTO speed—1034 rpm)						
141.1 (105.2)	2098	8.24 (31.21)	0.408 (0.248)	17.11 (3.37)	0.36 (1.37)	
Standard Power Take-off Speed (1000 rpm)						
151.9 (113.3)	2032	8.62 (32.63)	0.396 (0.241)	17.61 (3.47)	0.41 (1.56)	
Maximum Power (1 hour)						
156.2 (116.5)	2000	8.72 (33.00)	0.390 (0.237)	17.92 (3.53)	0.44 (1.66)	

#### VARYING POWER AND FUEL CONSUMPTION

141.1 (105.2)	2098	8.24 (31.21)	0.408 (0.248)	17.11 (3.37)	0.36 (1.37)	Air temperature
121.1 (90.3)	2119	7.21 (27.30)	0.415 (0.253)	16.79 (3.31)	0.31 (1.16)	73°F (23°C)
91.6 (68.3)	2135	5.85 (22.16)	0.446 (0.271)	15.64 (3.08)	0.24 (0.91)	Relative humidity
61.2 (45.6)	2144	4.39 (16.63)	0.501 (0.305)	13.92 (2.74)	0.17 (0.65)	46%
30.7 (22.9)	2146	3.01 (11.41)	0.686 (0.417)	10.18 (2.00)	0.11 (0.42)	Barometer
--	2154	1.79 (6.77)	--	--	--	30.5" Hg (103.2 kPa)

Maximum torque - 489.9 lb.-ft. (664.2 Nm) at 1300 rpm

Maximum torque rise - 38.7%

Torque rise at 1700 engine rpm - 26%

Power increase at 2000 engine rpm - 10.7%

#### DRAWBAR PERFORMANCE

##### (Unballasted - Front Drive Engaged)

#### FUEL CONSUMPTION CHARACTERISTICS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—12th(3A) Gear									
118.7 (88.5)	8905 (39.6)	5.00 (8.04)	2100	5.5	0.466 (0.283)	14.97 (2.95)	187 (86)	41 (5)	29.8 (101.0)
75% of Pull at Maximum Power—12th(3A) Gear									
90.5 (67.5)	6575 (29.2)	5.16 (8.31)	2126	3.5	0.481 (0.293)	14.47 (2.85)	183 (84)	41 (5)	29.8 (101.0)
50% of Pull at Maximum Power—12th(3A) Gear									
61.3 (45.7)	4390 (19.5)	5.24 (8.43)	2136	2.6	0.533 (0.324)	13.10 (2.58)	181 (83)	41 (5)	29.8 (101.0)
75% of Pull at Reduced Engine Speed—14th(3B) Gear									
91.1 (67.9)	6675 (29.7)	5.12 (8.23)	1761	3.7	0.417 (0.254)	16.70 (3.29)	187 (86)	43 (6)	29.8 (101.0)
50% of Pull at Reduced Engine Speed—14th(3B) Gear									
61.3 (45.7)	4430 (19.7)	5.19 (8.35)	1765	2.8	0.490 (0.298)	14.22 (2.80)	183 (84)	43 (6)	29.8 (101.0)

**Location of tests:** IRSTEА, Centre d'Antony, 1 rue Pierre-Gilles de Gennes CS 10030 Antony, 92163, Cedex, France

**Dates of tests:** November, 2012 to July, 2013

**Manufacturer:** AGCO S.A. BP 307, Avenue Blaise Pascal, 60026 Beauvais, France

**FUEL and OIL:** Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C)** 0.838 **Fuel weight** 6.98 lbs/gal (0.836 kg/l) **Diesel Exhaust Fluid (DEF)** 32% aqueous urea solution **DEF weight** 9.10 lbs/gal (1.091 kg/l) **Oil SAE 15W40 API service classification** CJ-4 **Transmission and hydraulic lubricant** BP Terrac Tractan 9 15W/40 **Front axle lubricant** BP Terrac Tractan 9 15W/40

**ENGINE: Make** Sisu AGCO **Power Diesel Type** six cylinder vertical with turbocharger and air to air intercooler and SCR (selective catalyst reduction) exhaust treatment **Serial No.** W00421 **Crankshaft** lengthwise **Rated engine speed** 2100 **Bore and stroke** 4.252" x 4.724" (108.0 mm x 120.0 mm) **Compression ratio** 17.4 to 1 **Displacement** 402 cu in (6596 ml) **Starting system** 12 volt **Lubrication pressure** **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper cartridges **Muffler** vertical **Cooling medium temperature control** thermostat and variable speed fan

**CHASSIS: Type** front wheel assist **Serial No.** B 262 901 **Tread width** rear 52.8" (1340 mm) to 87.8" (2230 mm) front 52.8" (1340 mm) to 87.8" (2230 mm) **Wheelbase** 113.2" (2875 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (6) range operator controlled powershift **Nominal travel speeds mph (km/h)** first 0.96 (1.55) second 1.16 (1.86) third 1.36 (2.19) fourth 1.63 (2.63) fifth 1.92 (3.09) sixth 2.31 (3.72) seventh 2.60 (4.19) eighth 3.13 (5.03) ninth 3.67 (5.91) tenth 4.42 (7.11) eleventh 5.19 (8.36) twelfth 5.29 (8.51) thirteenth 6.25 (10.06) fourteenth 6.35 (10.22) fifteenth 7.46 (12.00) sixteenth 8.97 (14.44) seventeenth 10.55 (16.98) eighteenth 12.19 (19.62) nineteenth 12.70 (20.44) twentieth 14.65 (23.58) twenty-first 17.20 (27.68) twenty-second 20.69 (33.30) twenty-third 24.33 (39.16) twenty-fourth 24.86 (40.00) electronically limited reverse 0.96 (1.55), 1.16 (1.86), 1.36 (2.19), 1.63 (2.63), 1.92 (3.09), 2.31 (3.72), 2.60 (4.19), 3.13 (5.03), 3.67 (5.91), 4.42 (7.11), 5.19 (8.36), 5.29 (8.51), 6.25 (10.06), 6.35 (10.22), 7.46 (12.00), 8.97 (14.44), 10.55 (16.98), 12.19 (19.62), 12.70 (20.44), 14.65 (23.58), 17.20 (27.68), 20.69 (33.30), 24.33 (39.16), 24.86 (40.00) electronically limited

**DRAWBAR PERFORMANCE**  
**(Unballasted - Front Drive Engaged)**  
**MAXIMUM POWER IN SELECTED GEARS**

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Consumption Hp.hr/gal (kW.h/l)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
6th(1F) Gear									
71.3 (53.2)	13375 (59.5)	2.00 (3.22)	2125	14.5	0.545 (0.331)	12.79 (2.52)	181 (83)	41 (5)	30.1 (102.0)
7th(2A) Gear									
81.3 (60.6)	13265 (59.0)	2.30 (3.70)	2121	13.8	0.524 (0.319)	13.30 (2.62)	181 (83)	41 (5)	30.1 (102.0)
8th(2B) Gear									
93.2 (69.5)	13005 (57.8)	2.69 (4.33)	2059	12.8	0.479 (0.291)	14.57 (2.87)	183 (84)	41 (5)	30.1 (102.0)
9th(2C) Gear									
105.7 (78.8)	12710 (56.5)	3.12 (5.02)	2005	11.0	0.461 (0.280)	15.14 (2.98)	183 (84)	41 (5)	30.1 (102.0)
10th(2D) Gear									
118.7 (88.5)	11300 (50.3)	3.94 (6.34)	2006	6.4	0.449 (0.273)	15.53 (3.06)	183 (84)	41 (5)	30.1 (102.0)
11th(2E) Gear									
126.6 (94.4)	10075 (44.8)	4.71 (7.58)	2000	4.7	0.429 (0.261)	16.24 (3.20)	181 (83)	41 (5)	29.8 (101.0)
12th(3A) Gear									
130.6 (97.4)	10175 (45.3)	4.81 (7.74)	2007	4.8	0.440 (0.268)	15.86 (3.12)	187 (86)	41 (5)	29.8 (101.0)
13th(2F) Gear									
132.1 (98.5)	8745 (38.9)	5.66 (9.12)	1994	4.5	0.422 (0.257)	16.50 (3.25)	187 (86)	41 (5)	29.8 (101.0)
14th(3B) Gear									
130.2 (97.1)	8400 (37.4)	5.81 (9.35)	2008	4.3	0.443 (0.269)	15.75 (3.10)	190 (88)	43 (6)	29.8 (101.0)
15th(3C) Gear									
132.4 (98.7)	7240 (32.2)	6.86 (11.03)	2014	4.1	0.437 (0.266)	15.94 (3.14)	190 (88)	43 (6)	29.8 (101.0)
16th(3D) Gear									
129.8 (96.8)	5900 (26.2)	8.25 (13.28)	1999	3.5	0.439 (0.267)	15.89 (3.13)	189 (87)	43 (6)	29.8 (101.0)
17th(3E) Gear									
127.9 (95.4)	4900 (21.8)	9.79 (15.75)	1998	2.7	0.438 (0.267)	15.86 (3.13)	189 (87)	43 (6)	29.8 (101.0)
18th(3F) Gear									
119.1 (88.8)	3910 (17.4)	11.42 (18.38)	2008	2.0	0.463 (0.281)	15.08 (2.97)	190 (88)	43 (6)	29.8 (101.0)

TRACTOR SOUND LEVEL WITH CAB	Front wheel drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 10th (2D) gear	69.0	68.0
Bystander		--

**TIRES, BALLAST AND WEIGHT**

**Rear Tires** - No., size, ply & psi(kPa)

**Front Tires** - No., size, ply & psi(kPa)

**Height of Drawbar**

**Static Weight with operator** - Rear

- Front

- Total

**Tested without ballast**

Two 20.8R38;\*\*,14(100)

Two 16.9R28;\*\*,15(105)

19.7 in (500 mm)

8090 lb (3670 kg)

6845 lb (3105 kg)

14935 lb (6775 kg)

**Clutch** multiple wet disc operated by foot pedal  
**Brakes** multiple wet disc hydraulically operated by two foot pedals that can be locked together  
**Steering** hydrostatic **Power take-off** 540 rpm at 1980 engine rpm or 1000 rpm at 2030 engine rpm  
**Unladen tractor mass** 14770 lb (6700 kg)

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

**NOTE:** The data on this summary was obtained from OECD report 2788 conducted on the Massey Ferguson 7618 Dyna 6 Diesel.

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD test procedures. This tractor did not meet the manufacturer's remote hydraulic flow claim of 29 GPM (110 lpm) nor 3 point lift capacity claim of 12500 lbs. The manufacturer's remote hydraulic flow claim of 39 GPM (150 lpm) for optional pump was not verified. The performance figures on this summary were taken from a test conducted under the OECD Code 2 test procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **2788**, Nebraska Summary 927, May 12, 2014.

Roger M. Hoy  
Director

M.F. Kocher  
J.D. Luck  
P.J. Jasa  
Board of Tractor Test Engineers

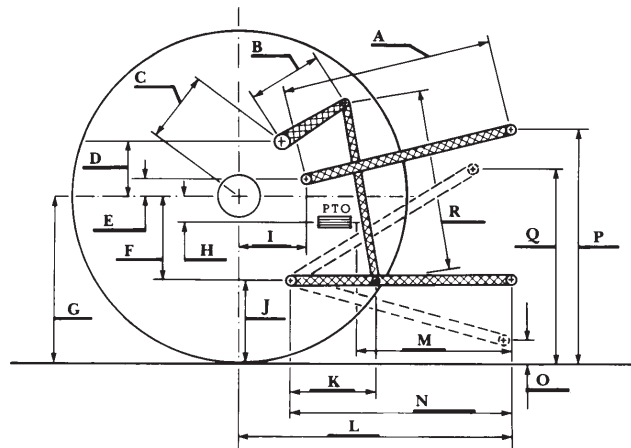
## HYDRAULIC PERFORMANCE

CATEGORY: II

Quick Attach: None

OECD Static test

- Maximum force exerted through whole range: 8925 lbs (39.7 kN)
- i) Sustained pressure of the open relief valve: 2845 psi (196 bar)  
two outlet sets combined
- ii) Pump delivery rate at minimum pressure: 28.6 GPM (108.3 l/min)
- iii) Pump delivery rate at maximum
- hydraulic power: 26.6 GPM (100.6 l/min)
- Delivery pressure: 1930 psi (133 bar)
- Power: 29.9 HP (22.3 kW)  
single outlet set
- ii) Pump delivery rate at minimum pressure: 28.8 GPM (109.0 l/min)
- iii) Pump delivery rate at maximum
- hydraulic power: 25.7 GPM (97.2 l/min)
- Delivery pressure: 1915 psi (132 bar)
- Power: 28.7 HP (21.4 kW)



**HITCH DIMENSIONS AS TESTED—NO LOAD**

	inch	mm
A	28.7	728
B	11.6	295
C	13.9	354
D	19.1	330
E	13.0	201
F	11.0	280
G	34.4	875
H	2.0	50
I	15.5	394
J	23.4	595
K	21.7	550
L	43.3	1101
M	24.6	626
N	37.0	940
O	7.7	195
P	47.4	1205
Q	35.8	909
R	30.7	780